Unit 4 Plant Superpowers

Content Area: **Science**
Course(s): **Science 1**
Time Period: **Marking Period 4**
Length: **MP 4**
Status: **Published**

Essential Questions

- How do plants grow and develop?
- How do the external structures of a plant contribute to its survival?
- How do plants help their offspring survive?

Big Ideas

- Parents and offspring often engage in behaviors that help the offspring survive.
- Plants use their external structures to adapt in their habitat.

Climate Change

K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

- Activity: In this unit, design an umbrella using play-doh, a cup, a straw, and paper, to see how it would withstand a gust of wind. After stimulating a wind gust, students will then think about how to improve upon their umbrella design for the umbrella to not fall over when impacted by the wind gust. Students will analyze the data from both umbrellas and compare their performances.

Career Readiness

9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community.

- Activity CR.1: Teachers and students will discuss the importance of planting in the community. Students will plant a seed and take it home to plant in the community.

CRLLKS- 21st Century

NJSL Standard/s: 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community

Activity: Teachers and students will discuss the importance of planting in the community. Students will plant a seed and take it home to plant in the community

CSDT Technology Integration

8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences

Activity: Students will research a plant on Pebble Go.

Cross-Curricular Integration

Integration Area: Math

1.M.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Activity: Students will compare the length of different plants by using the words shorter and longer. Students will work in pairs to compare the lengths of plants.

Science and Engineering Practices

Asking Questions and Defining Problems

- Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.

Analyzing and Interpreting Data

- Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations

Enduring Understandings

New Jersey State Learning Standards

From Molecules to Organisms: Structure and Processes

- 1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
    - LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow
    - LS1.D: Information Processing Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.
- 1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
    - LS1.B: Growth and Development of Organisms Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.

Heredity: Inheritance and Variation of Traits

- •1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
    - LS3.A: Inheritance of Traits Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents.
    - LS3.B: Variation of Traits Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.

Engineering Design

- K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.
    - ETS1.A: Defining and Delimiting Engineering Problems: A situation that people want to change or create can be approached as a problem to be solved through engineering.
    - Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.
    - Before beginning to design a solution, it is important to clearly understand the problem.
- K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

- ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs

Focus Areas

Knowledge

- Adult plants can have young.
- Plant parents help their offspring by creating seed coats and dispersal methods.
- **Skills**
- Describe the stages of life for plants.
- Describe how plants grow and develop.
- Describe how plant parents help their offspring survive.

Understandings

- Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

Resources

Primary Resources

- Mystery Science

Scientific Inquiry

Core

- Mystery Science: Plant survival and engineering Why don't trees blow down in the wind?
- Mystery Science: Plant movement and survival: What do sunflowers do when you're not looking?
- Mystery Science: Plant Traits and Offspring